SiliconGraphics
Computer Systems

Before the
Federal Communications Commission
Washington, DC 20036

June 1, 1995

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In the Matter of)
)
Amendment of Parts 2 and 15 of the)
Commission's Rules to Deregulate the) ET Docket No. 95-19
Equipment Authorization Requirements)
for Digital Devices)

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To the Commission:

COMMENTS OF SILICON GRAPHICS, INC.

Silicon Graphics, Inc., ("SGI") hereby provides comments on the various important and significant issues raised by the Commission in its Notice of Proposed Rulemaking (FCC 95-46, released February 7, 1995) (the "NPRM"). SGI manufacturers and markets high performance technical workstations and supercomputers including both desktop and floorstanding units. SGI's product compliance engineering staff has participated with organizations involved in FCC proceedings that have developed and defined regulations applicable to computers and digital devices since 1978. Silicon Graphics, Inc., commends the Commission for its consideration to reduce the burdonsome certfication process for Class B digital devices including personal computers. SGI is directly affected by this program as it chooses to design, test and declare conformance for many of its desktop workstations to the Class B limits as these are generally installed in the mixed "residential, commercial and light industrial" environments. We have found, that with the short, rapid development cycles in our industry and markets that FCC Certification is an impediment to rapid marketing of the product. The program, as proposed by the Commission, does have some pitfalls and may introduce additional burdonsome requirements.

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Summary of SGI's position

1. SGI supports the replacement of the Certification program by a verification, "post-card (instant) certification" or similar program.

2. A simpler labelling program should be instituted for fully tested devices. A "FCC logo" is unnecessary. Compliance can be declared in simple text. If the Commission proceeds with approving the concept of "modular devices" then extensive labelling notifying purchasers and users of potential interference and ultimate responsiblity for correction should be required.

3. SGI is adamently opposed to any laboratory accreditation scheme by NIST/NVLAP or any similar organization. The present mehod of laboratory listing or registration by the Commission's Columbia Laboratories is adequate.

4. The Commission's proposal for "modular computer" compliance by testing components is technically incorrect and unsound.

5. The Commission should begin enforcing regulations, which were adopted 15 years ago, on "counter-top" manufacturers and retailers of noncompliant products rather than attempt to develop a new program which futher separates the requirements for small and large businesses. To date, the FCC's enforcement program has been largely limited to visiting trade shows (which many small businesses do not attend) and issuing citations for labelling infractions. SGI has never detected electromagnetic interference from a label.

Discussion

1. SGI encourages the Commission to adopt some variation of verification or instant-certification program. SGI supports the notion of a Manufacturer's Declaration of Conformity ("DoC"). SGI has been using DoCs with success in the European Union, other European countries and the Asia/Pacific region for several years. This is an intelligent approach to the international approval/registration/certification process morass of recent years. This will harmonize the United States with processes already established and accepted in other areas of the world. Further, SGI requests that the Commission act on this matter in a timely manner and not tie this important issue (to compliant manufacturers) to such issues as "modular computers".

2. SGI believes that some labelling and compliance declaration on the product is necessary. This can be simple test which would clarify Class A as commercial/industrial or Class B as residential. SGI, due to its international marketing, does design and test some of its desk-top products as Class B. In the international market, as well as the United States, there is often no clear boundary between residential, commercial and light industrial environments.

These environments are often mixed. While SGI declares products as Class B in the international marketplace with its Manufacturer's Declaration of Conformity, it chooses, due to price and performance considerations, not to FCC-certificate some of these products due to time-delays in bringing the product to market caused by the present certification program. We believe that any new labelling proposal should take these environments under consideration.

Any labelling should be simple text and not a new "FCC logo". A logo brings nothing but overhead costs in replicating artwork. Further, a "FCC logo" would imply, as do safety or other regulatory agency logos, that the unit has been investigated and tested for electromagnetic emissions. Under the Commission's proposal for "approved subassemblies" this would be false.

The Commission may want to retain the FCC Identifier (FCC ID) for Class B products. There may be value in tracibility of a product. However, there is no present enforcement program on noncompliant PC clones which continue to be marketed freely so the FCC ID labelling probably would have no beneficial effect.

If the Commission proceeds with the proposed modular computer program SGI recommends a label informing purchasers and users that the product has not been fully tested and may cause interference. Further, the label should include a warning that the owner/user may have to correct any interference problems caused.

3. The Commission has raised the issue of laboratory accreditation and the use of NIST/NVLAP to administer this program. SGI opposes this as there is no benefit to this program In the United States we have used the present laboratory listing or registration scheme for 15 years. It has shown to be adequate for its intent. The digital-device-test market and the FCC Laboratory has been sufficiently effective in correcting or removing incompetent test laboratories. NIST/NVLAP brings no value but does bring added bureacratic process and cost. Additionally, NIST/NVLAP has not exhibited any expertise in testing for electromag-

netic interference and compatibility. In fact, it is the computer industry who developed the test methods and even showed the FCC Laboratory how to test personal computer and digital device systems. It is the computer industry and commercial test laboratories who are the digital device testing experts. Not NIST/NVLAP. This laboratory accreditation proposal brings no benefits over the present FCC laboratory listing/registration program. If the Commission has a concern then perhaps the present program should be modified. We ask that the Commission meet its responsibility in this area and continue the present laboratory listing/registration program.

4. The Commission's proposal for "modular computers" is technically incorrect and unsound. We have responded similarly in previous NPRMs in this regard. The RF emissions from a a product or system, even if all subassemblies are compliant when tested alone, are likely to be above the FCC Part 15 digital device limits. The law currently requires that all digital devices offerred for sale meet the emission limits contained in the Commission's Rules, Part 15. Are we now to have two classes of products? One which is produced by a group of manufacturers who can afford the the engineering design and testing required to meet the Rules, and a second group who is effectively given a waiver for the Commission's Rules and produces noncompliant product because the Commission does not have the inclination or the ability to enforce its Rules?
   The Commission has received reports of what happens in this instance of testing subassemblies for compliance and then assembling systems and retesting for compliance in previous NPRM actions. One simply cannot take all of the subassemblies and place them in a very complex system configuration and expect them to be compliant. The capacitive and inductive coupling present in a system configuration causes RF energy to couple into Input/Output (I/ O) circuits and wiring to be radiated from I/O and AC power cables. This happens repeatedly during product development and is corrected by most manufacturers under present Part 15 Rule requirements.

SGI had a recent experience with this during development of one of its desktop workstations. SGI acquires power supplies from outside vendors. SGI develops the technical specification for the power supply which includes regulatory requirements such as product safety and electomagnetic compatibility. Due to past experience with AC power cord radiated emissions SGI requires conducted limit compliance to 100 MHz. That is, the conducted emission limit at 30 MHz is extended to 100 MHz. In this instance, when the power supply was tested "stand-alone" (not in a system but with a resistive and/or dynamic load) the supply exhibited compliance. However, ehen it was placed in a system configuration, in a chassis in close proximity to RF sources including a microprocessor, the device failed to meet radiated emission limits at 415 MHz by several dB. The power supply AC power cord was determined to be the radiation source. Further, it was determined that additional filter components were required for the power supply emi filter.

We have had similar experiences with other subassemblies such as disk drives. These units seem inocuous when tested alone but when placed in a system configuration can become significant sources of RF emissions.by radiating internally generated RF energy. The only way to determine this is to test in a systems configuration! This has been established time and time again. SGI, as an engineering-driven organization, will not support a program which ignores basic engineering principles.

SGI believes, although erroneous, the Commission will probably allow some sort of modular computer program in which products are assembled of so-called "compliant" subassemblies. To ensure electromagnetic compatibility and to minimize the potential for RF interference SGI recommends that the compliance emission limits for such devices be set at a "minus 6 dB" level below the present emission limits for Class B devices. For instance, if one chooses to use a "pre-approved" power supply to configure a system, then the conducted limit should be 42 dBuV rather than 48 dBuV. This is readily attainable and does not add significant cost. Many manufacturers employ this limit margin to ensure compliance

during production where testing of all serially produced units is not feasible.

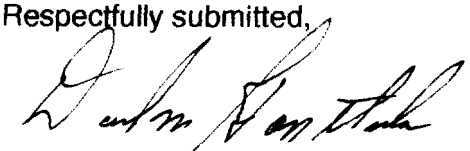
Additionally, the Commission must address how manufacturers should approach this modularity program. What is to be done for systems which are composed of both "pre-approved" subassemblies and components and untested subassemblies? For instance, if a manufacturer uses a pre-approved power supply but not a tested motherboard, disk drive or other assemblies and then determines during system testing that he has a 415 MHz overlimit radiated emission from the AC power cable, is the manufacturer required to correct this? Or does the manufacturer get a waiver on this emission due to the fact he used a "FCC pre-approved subassembly" and has a DoC to establish compliance?

Conclusion

Silicon Graphics, Inc., commends the Commission for considering abandonment of the Class B digital device certification program. This program has cost SGI significantly in terms of time-to-market with new products and upgrades. We believe the industry and the user base will benefit from this program. It will also harmonize the United States with proceedures in place in other parts of the world.

SGI does not believe the modular computer concept will bring more compliant products to the marketplace. Consumers are not interested in compliant products, they are driven by price and performance only. There is no incentive for noncompliant manufacturers to change the way they are doing business.

Respectfully submitted,



David M. Hanttula
Senior Manager
Product Compliance Engineering
Silicon Graphics, Inc.
PO Box 7311 MS 946
Mountain View, CA 94039